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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/644,327	08/20/2003	Li Gao	15903-002002 / 2001-IP-00	6652

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EXAMINER	
TAYLOR, VICTOR J	

ART UNIT	PAPER NUMBER
2863	

DATE MAILED: 06/17/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/644,327	GAO, LI	
	Examiner	Art Unit	
	Victor J. Taylor	2863	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 August 2003*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-11* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-11* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *24 February 2004* is/are: a)☒ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *4*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☒ Other: *Office Action*.

DETAILED ACTION

Drawings

1. The drawings were received on 24 February 2004. These drawings are approved.

Double Patenting

2. A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101, which states, "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

3. Claims 1-11 are rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 1-11 of prior U.S. Patent No. 6,611,762. Dependent claims 2-7 and 8-10 are rejected as based on the rejected base claims. This is a double patenting rejection.

For example with regards to the independent limitations as found in the instant application of claims 1, 7, and 11 in US 10/644,327 are identical to the independent limitations of claims 1, 7, and 11 as found in the U. S. Patent 6,611,762. The independent and dependent claim limitations are found as follows.

Independent claims in instant application Number.	Claims in prior art US Patent number US Patent Number.

10/644,327	6,611,762
What is claimed: 1. A method for determining a formation profile surrounding a well bore, Comprising the steps of: (a) receiving field log data for a formation surrounding the well bore; (b) generating a Jacobian matrix responsive to the field log data; (c) solving for a new formation conductivity profile using the Jacobian matrix; (d) calculating a new log response using the new formation conductivity profile; (e) determining if the log response converges with the received field log data; (f) performing a quasi-Newton update of the Jacobian matrix and repeating step (c) and (e) if the log response does not converge with the received field log data; and (g) outputting the formation profile based upon the log response if the log response converges with the received field log data. 2. The method of claim 1, wherein the step of generating further comprises the steps of: determining an initial vector from the field log data, said initial vector being at least one of a conductivity or resistivity vector; and generating the Jacobian matrix using a sliding window and the initial vector. 3. The method of claim 2, wherein the method of generating the Jacobian matrix using the sliding window further comprises the steps of: determining a single column vector of the Jacobian matrix based on a three-bed formation; and sliding the single column vector across the formation to	What is claimed: 1. A method for determining a formation profile surrounding a well bore, comprising the steps of: (a) receiving field log data for a formation surrounding the well bore; (b) generating a Jacobian matrix responsive to the field log data; (c) solving for a new formation conductivity profile using the Jacobian matrix; (d) calculating a new log response using the new formation conductivity profile; (e) determining if the log response converges with the received field log data; (f) performing a quasi-Newton update of the Jacobian matrix and repeating step (c) and (e) if the log response does not converge with the received field log data; and (g) outputting the formation profile based upon the log response if the log response converges with the received field log data. 2. The method of claim 1, wherein the step of generating further comprises the steps of: determining an initial vector from the field log data, said initial vector being at least one of a conductivity or resistivity vector; and generating the Jacobian matrix using a sliding window and the initial vector. 3. The method of claim 2, wherein the method of generating the Jacobian matrix using the sliding window further comprises the steps of: determining a single column vector of the Jacobian matrix based on a three-bed formation; and sliding the single column vector across the formation to

populate the Jacobian matrix. 4. The method of claim 1, further including the step of applying a maximum flatness inversion algorithm to the received field log data. 5. The method of claim 1, wherein the step of determining further comprises the step of comparing the determined log response to the received field log data to determine any differences there between. 6. The method of claim 1, wherein the step of performing further comprises the step of performing a quasi-Newton update responsive to the determined log response and a presently existing Jacobian matrix. 7. A method for determining a formation profile surrounding a well bore, comprising the steps of: (a) receiving field log data for a formation surrounding the well bore; (b) determining an initial vector from the field log data, said initial vector being a conductivity or resistivity vector; (c) generating the Jacobian matrix using a sliding window and the initial vector; (d) solving for a formation conductivity vector using the Jacobian matrix with maximum flatness constraint; (e) calculating a log response using the new formation conductivity vector; (f) determining if the log response converges with the received field log data; (g) performing a quasi-Newton update of the Jacobian matrix and repeating step (d) and (f) if the log response does not converge with the received field log data; and (h) outputting the formation profile based	populate the Jacobian matrix. 4. The method of claim 1, further including the step of applying a maximum flatness inversion algorithm to the received field log data. 5. The method of claim 1, wherein the step of determining further comprises the step of comparing the determined log response to the received field log data to determine any differences there between. 6. The method of claim 1, wherein the step of performing further comprises the step of performing a quasi-Newton update responsive to the determined log response and a presently existing Jacobian matrix. 7. A method for determining a formation profile surrounding a well bore, comprising the steps of: (a) receiving field log data for a formation surrounding the well bore; (b) determining an initial vector from the field log data, said initial vector being a conductivity or resistivity vector; (c) generating the Jacobian matrix using a sliding window and the initial vector; (d) solving for a formation conductivity vector using the Jacobian matrix with maximum flatness constraint; (e) calculating a log response using the new formation conductivity vector; (f) determining if the log response converges with the received field log data; (g) performing a quasi-Newton update of the Jacobian matrix and repeating step (d) and (f) if the log response does not converge with the received field log data; and (h) outputting the formation profile based

upon the log response if the log response converges with the received field log data.	upon the log response if the log response converges with the received field log data.
8. The method of claim 7, wherein the method of generating the Jacobian matrix using the sliding window further comprises the steps of: determining a single column vector of the Jacobian matrix based on a three-bed formation; and sliding the single column vector across the formation to populate the Jacobian matrix.	8. The method of claim 7, wherein the method of generating the Jacobian matrix using the sliding window further comprises the steps of: determining a single column vector of the Jacobian matrix based on a three-bed formation; and sliding the single column vector across the formation to populate the Jacobian matrix.
9. The method of claim 7, wherein the step of determining further comprises the step of comparing the determined log response to the received field log data to determine any differences there between.	9. The method of claim 7, wherein the step of determining further comprises the step of comparing the determined log response to the received field log data to determine any differences there between.
10. The method of claim 7, wherein the step of solving further comprises performing a gradient based iterative inversion.	10. The method of claim 7, wherein the step of solving further comprises performing a gradient based iterative inversion.
11. A method for determining a formation profile surrounding a well bore, comprising the steps of: (a) receiving field log data for a formation surrounding the well bore; (b) determining an initial vector from the field log data, said initial vector being a conductivity or resistivity vector; (c) generating the Jacobian matrix using a sliding window and the initial vector; (d) generating the Jacobian Matrix using a sliding window and the initial vector said step further comprising the steps of: determining an single column vector of the Jacobian matrix using a three-bed formation; and sliding the single column vector across the formation to populate the Jacobian	11. A method for determining a formation profile surrounding a well bore, comprising the steps of: (a) receiving field log data for a formation surrounding the well bore; (b) determining an initial vector from the field log data, said initial vector being a conductivity or resistivity vector; (c) generating the Jacobian matrix using a sliding window and the initial vector; (d) generating the Jacobian Matrix using a sliding window and the initial vector said step further comprising the steps of: determining an single column vector of the Jacobian matrix using a three-bed formation; and sliding the single column vector across the formation to populate the Jacobian

matrix; (e) solving for a formation conductivity vector using the Jacobian matrix with maximum flatness constraint; (f) calculating a log response using the new formation conductivity vector; (g) determining if the log response converges with the received field log data; (h) comparing the determined log response to the received field log data to determine if the log response converges with the received field log data; (i) performing a quasi-Newton update of the Jacobian matrix and repeating step (e) and (f) if the log response does not converge with the received field log data; and (j) outputting the formation profile based upon the log response if the log response converges with the received field log data.	matrix; (e) solving for a formation conductivity vector using the Jacobian matrix with maximum flatness constraint; (f) calculating a log response using the new formation conductivity vector; (g) determining if the log response converges with the received field log data; (h) comparing the determined log response to the received field log data to determine if the log response converges with the received field log data; (i) performing a quasi-Newton update of the Jacobian matrix and repeating step (e) and (f) if the log response does not converge with the received field log data; and (j) outputting the formation profile based upon the log response if the log response converges with the received field log data.

4. As to the identical dependent claims 2-7 and 8-10 variously dependent on the rejected base claims. These claims stand rejected as rejected on the rejected base claims.

Prior Art

5. The prior art made of record and not relied upon is considered pertinent to applicant;

I. Gao in US 6,611,762 in class 702/007 is cited for the formation profile surrounding a wellbore processing field log data and generating a Jacobian matrix and using the quasi-Newton response to update the Jacobian matrix and generating

formation profile coverage's from the received field log data, see abstract and the complete patent.

Conclusion

6. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Victor J. Taylor whose telephone number is 517-272-2281. The examiner can normally be reached on 8:00 to 5:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John E. Barlow can be reached on 571-272-2863. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

VJT
10 June 2004

John Barlow
Supervisory Patent Examiner
Technology Center 2800